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IN THE UNITED STATES PATENT AND TRADEMARK OFFICE
BEFORE THE BOARD OF PATENT APPEALS AND INTERFERENCES

APPLICANT(s): Valo et al.

SERIAL NO.: 09/397,300 ART UNIT: 2682

FILING DATE: 9/15/99 EXAMINER: Ramos-Feliciano, E.

TITLE: METHOD AND APPARATUS FOR DYNAMIC RADIO RESOURCE CONTROLLING

ATTORNEY DOCKET NO.: 859-008869-US (PAR)

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ATTENTION: BOARD OF PATENT APPEALS AND INTERFERENCES

APPELLANTS' BRIEF

(37 C.F.R. §1.192)

This is an appeal from the final rejection of the claims in the above-identified application. A Notice of Appeal was mailed on 5 March 2004. The fees required under 37 C.F.R. §1.17 are being submitted herewith. This brief is being submitted in triplicate. An appendix of claims is attached hereto.

I. REAL PARTY IN INTEREST

The real party in interest in this Appeal is:

Nokia Mobile Phones Limited
Keilalahdentie 4
02150 Espoo
FINLAND

II. RELATED APPEALS AND INTERFERENCES

There are no related appeals or interferences.

III. STATUS OF CLAIMS

Claims 1-18 are pending in the application.

Claims 1-11 have been allowed.

Claims 12-18 have been finally rejected.

The claims on appeal are 12-18.

IV. STATUS OF AMENDMENTS

Appellants filed an amendment on January 12, 2004, where claim 11 was amended to correct a typographical error, and claims 12 and 15 were amended to overcome a 35 USC 112, second paragraph rejection.

The Advisory Action of January 27, 2004 states that the amendment will not be entered because it does not place the application in better form for appeal by materially reducing or simplifying the issues for appeal.

Appellants believe that the amendment is entitled to entry under the standards set forth in MPEP 1207 because the amendment adopts the Examiner suggestions and requires only a cursory review by the examiner.

Applicants respectfully request entry of the amendment.

V. SUMMARY OF INVENTION

The present invention is directed to a method and apparatus for communicating between a network element and a mobile terminal in a communication network. The invention includes exchanging a plurality of data units between the network element and the mobile terminal. At least one data unit includes a status bit indicating that flow control in data terminal equipment used to transmit the data unit is active or inactive. The invention calls for analyzing the status bit and requesting a change in a data rate used to exchange the plurality of data units.

Page 8, lines 4-8 of the present specification describes how data from data terminal equipment is processed by a relay function. Figure 4 shows the functional elements of a data transfer process in a GSM system, including the data terminal equipment shown as a block designated "DTE."

The term "flow control" is generally known in the art. One definition from www.digitek-asi.com/h-glossary.html is:

> A method of controlling the amount of data that two devices exchange. In data communications, flow control prevents one modem from "flooding" the other with data. If data comes in faster than it can be processed, the receiving side stores the data in a buffer. When the buffer is nearly full, the receiving side signals the sending side to stop until the buffer has space again. Between hardware (such as your modem and your computer), hardware flow control is used; between modems, software flow control is used.

Page 8, line 26 through page 9, line 5 of the present application describe the flow control process of the present invention. When buffers processing data from data terminal

equipment (DTE) become full, a flow control active condition is sent to the DTE which is then prevented from sending data. When the buffers regain capacity, a flow control inactive condition is sent and the DTE resumes data transmission.

Page 9, lines 7-19 of the present application describe the operation of a mobile station utilizing the invention, where the status bit is analyzed and negotiations for radio resource upgrading or downgrading are conducted accordingly.

Independent claim 12 describes the invention in terms of a method of communication between a network element and a mobile terminal in a communication network comprising;

exchanging a plurality of data units between the network element and the mobile terminal, wherein at least one data unit includes a status bit indicating that flow control in a data terminal equipment used to transmit the data unit is active or inactive;

analyzing the status bit; and

requesting a change in a data rate used to exchange the plurality of data units.

Independent claim 15 describes the invention as a communication network comprising;

a mobile terminal;

a network element for exchanging a plurality of data units with the mobile terminal;

circuitry for providing at least one data unit that includes a status bit indicating that flow control in a

data terminal equipment used to transmit the data unit is active or inactive; and

circuitry for analyzing the status bit and for requesting a change in a data rate used to exchange the plurality of data units.

VI. ISSUES

1. The first issue presented for review is the propriety of the Examiner's rejection of claims 12, 15, and 17 under 35 USC 102(b) as being anticipated by Snowden et al. (US 5,974,032, "Snowden").

2. The second issue presented for review is the propriety of the Examiner's rejection of claims 13, 14, 16 and 18 under 35 USC 103(a) as being unpatentable over the combination of Snowden and Suzuki (US 6,044,067).

VII. GROUPING OF CLAIMS

The claims do not stand or fall together.

The claims are grouped as follows:

Group I: Claims 12-14

Group II: Claim 15-18

In accordance with 37 C.F.R. 1.192(c)(7), an explanation of why the claims of the groups are believed to be separately patentable is contained in the argument section below.

VIII. ARGUMENT

ISSUE 1: Claims 12, 15, and 17 are not anticipated by Snowden under 35 U.S.C. §102(b).

It is well settled that a claim is anticipated, "only if each and every element as set forth in the claim is found, either expressly or inherently described, in a single prior art reference." (See CHISOLM, Federal Circuit Guide, Pg. 1221).

> ...it must be shown that the reference contains all of the elements of the claims apart from irrelevant or merely extraneous variations, and the elements are arranged in the same way to achieve the same result which is asserted to be an inventive function... 454 U.S. 1129 (1981)

The elements of the claim and their function and purpose within the claim must be reviewed in a manner similar to an infringement analysis. If the device described in the cited reference would not infringe if it was later, it will not anticipate if the reference is earlier.

1. Claim 12 is directed to a method of communication between a network element and a mobile terminal in a communication network.

Applying the above mentioned standard for anticipation to claim 12 in view of Snowden, it is clear that Snowden fails to disclose or suggest:

exchanging a plurality of data units between the network element and the mobile terminal, wherein at least one data unit includes a status bit indicating that flow control in data terminal equipment used to transmit the data unit is active or inactive;

analyzing the status bit; and

requesting a change in a data rate used to exchange the plurality of units,

as recited by claim 12.

In the present invention, a mobile terminal analyzes received data and uses information existing therein to decide whether a correct radio resource is used for transmission. If the radio resource is insufficient, the mobile terminal initiates negotiations for an upgrade. If the radio resource is excessive, the mobile terminal will initiate negotiations for a radio resource downgrade.

At least one of the received data units includes a status bit indicating whether flow control in data terminal equipment used to transmit the data unit is active or inactive. The mobile station initiates negotiations on the basis of the status bit indication.

Snowden discloses a bit rate indicator (460) which the Examiner equates to Applicants' status bit.

In column 5, lines 21 to 35 of Snowden, the bit rate indicator (460) is described as determining the bit rate at which demodulation is performed by demodulator 37.

In column 9, lines 36-39 and in column 13, lines 60-63 of Snowden, the bit rate indicator is further described as indicating which of two bit rates is used in the remainder of a simplex time slot of a paging burst.

In column 9, line 66 through column 10, line 5 of Snowden, the bit rate indicator is described as also indicating an interleaving mode.

Snowden's indication of which bit rate is used in the remainder of a simplex time slot is not a status bit indicating flow control.

As mentioned above, page 8, line 26 through page 9, line 5 of the present application describe a flow control process where DTE is prevented from sending data when flow control is active and resumes sending data when flow control is inactive. This is clearly not the same as indicating which of two bit rates is used in the remainder of a simplex time slot of a paging burst.

The two concepts are unrelated. Flow control is related to stopping and resuming data flow, usually when a receiving device is at capacity. Indicating which of two bit rates is used in the remainder of a simplex time slot of a paging burst does not appear to be related in any way stopping and resuming data flow.

Snowden fails to disclose or suggest analyzing the status bit and requesting a change in a data rate.

Snowden's bit rate indicator (460) determines a demodulation bit rate used by demodulator 37 for demodulating the data in the remainder of the simplex time slot that contains the bit rate

indicator. There is no disclosure in Snowden related to analyzing the bit rate indicator and requesting a change in a data rate. The bit rate indicator is only used for demodulation.

It is clear that one skilled in the art would understand that Snowden's optimum bit rate indicator is not the same thing as the status bit of the present invention. Snowden does not cause or implement functions similar to those described in the claims of the present invention.

The Examiner's position as stated in the Advisory Action dated 27 January 2004, is that Applicants' status bit reads on Snowden's bit rate indicator because the bit rate indicator is indicates the bit rate at which modulation frequency occurs.

The Examiner further maintains that flow control is found in the fact that the bit rate or the data rate is changed, adjusted or controlled by analyzing the bit rate indicator.

Applicants' disagree because Applicants' status bit indicates flow control in DTE equipment, which is different from the bit rate at which modulation frequency occurs.

Applicants further disagree because in Snowden, a data rate used to exchange a plurality of data units between a network element and a mobile terminal is not changed, adjusted or controlled by analyzing the bit rate indicator. The bit rate indicator determines the bit rate at which demodulation is performed by demodulator 37 (see column 5, lines 21-35).

At lease for these reasons, Applicants respectfully submit that claim 12 is not anticipated by Snowden.

2. Claim 15 is directed to a communication network including a mobile terminal and a network element for exchanging a plurality of data units with the mobile station.

Applying the above mentioned standard for anticipation to claim 15 in view of Snowden, it is clear that Snowden fails to disclose or suggest:

> circuitry for providing at least one data unit that includes a status bit indicating that flow control in a data terminal equipment used to transmit the data unit is active or inactive; and
>
> circuitry for analyzing the status bit and for requesting a change in a data rate used to exchange the plurality of data units.

as recited by claim 15.

As argued above with in support of claim 12, Snowden's indication of which bit rate is used in the remainder of a simplex time slot is not a status bit indicating flow control. Thus, Snowden fails to disclose circuitry for providing at least one data unit that includes a status bit indicating that flow control is active or inactive.

Also as argued above in support of claim 12, Snowden fails to disclose or suggest analyzing the status bit and requesting a change in a data rate. Thus, there is nothing in Snowden related to circuitry for analyzing the status bit and for

requesting a change in a data rate used to exchange the plurality of data units.

At lease for these reasons, Applicants respectfully submit that claim 15 is not anticipated by Snowden.

3. Claim 17 depends from claim 15 and therefore is not anticipated by Snowden for the same reasons argued in support of claim 15.

ISSUE 2: Claims 13, 14, 16 and 18 are patentable over the combination of Snowden in view of Suzuki (US 6,044,067) under 35 USC §103(a).

1. Claims 13 and 14 depend from claim 12.

The combination of Snowden and Suzuki fails to disclose or suggest:

> exchanging a plurality of data units between the network element and the mobile terminal, wherein at least one data unit includes a status bit indicating that flow control in data terminal equipment used to transmit the data unit is active or inactive;
>
> analyzing the status bit; and
>
> requesting a change in a data rate used to exchange the plurality of units,

as recited by claim 12.

Snowden fails to disclose or suggest these limitations for all the reason stated above. Suzuki fails to supply these missing features. At least for these reasons, the combination of Snowden and Suzuki fails to disclose or suggest all the features of the present invention and that the combination fails to render claims 13 and 14 unpatentable.

2. Claims 16 and 18 depend from claim 15.

The combination of Snowden and Suzuki fails to disclose or suggest:

> circuitry for providing at least one data unit that includes a status bit indicating that flow control in a data terminal equipment used to transmit the data unit is active or inactive; and
>
> circuitry for analyzing the status bit and for requesting a change in a data rate used to exchange the plurality of data units.

as recited by claim 15.

As argued above, there is no disclosure in Snowden related to circuitry for providing at least one data unit that includes a status bit indicating that flow control is active or inactive. Snowden also fails to disclose circuitry for analyzing the status bit and for requesting a change in a data rate used to exchange the plurality of data units.

There is no disclosure in Suzuki related to circuitry as recited in claim 15. Therefore, the combination of Snowden and Suzuki

fails to disclose or suggest all the features of the present invention.

For these reasons, the combination of Snowden and Suzuki fails to render claims 16 and 18 unpatentable.

IX. CONCLUSION

In conclusion, Appellants respectfully submit that:

Claims 12, 15, and 17 are not anticipated by Snowden under 35 U.S.C. §102(b); and

Claims 13, 14, 16 and 18 are patentable over the combination of Snowden in view of Suzuki (US 6,044,067) under 35 USC §103(a).

It is respectfully submitted that all of the claims, as presented, are clearly novel and patentable over the prior art of record. Accordingly, the Board of Appeals is respectfully requested to favorably consider the rejected claims and to reverse the final rejection, thereby enabling this application to issue as a U.S. Letters Patent.

The appendix of claims is attached hereto.

A check in the amount of $330 is enclosed herewith for the appeal brief fee. The Commissioner is hereby authorized to charge payment for any additional fees associated with this communication or credit any over payment to Deposit Account No. 16-1350.

Respectfully submitted,

Joseph V. Gamberdell, Jr.
Reg. No.: 44,695

19 April 2004
Date

Perman & Green, LLP
425 Post Road
Fairfield, CT 06824
(203) 259-1800
Customer No.: 2512

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X. APPENDIX OF CLAIMS

The text of the claims involved in the appeal is as follows:

1. A mobile terminal (MS) comprising

transceiving means (TAF, 93) for communicating data with a mobile network element (IWF) using a bearer that is modifiable by a negotiation between the mobile terminal (MS) and the mobile network element (IWF), said data being divided into data units (60),wherein each data unit comprises at least one user data element (61) and at least one status data element (62), said status data element (62), said status data element comprising a status indication (63) from the mobile network element (IWF) to the mobile terminal (MS);

wherein said mobile terminal (MS) further comprises

detecting means (96) for detecting a need for bearer modification from received status indications (63) in at least two consecutive data units; and

control means (91) for initiating a negotiation for bearer modification, as a response to the detected need for bearer modification.

2. A mobile terminal as claimed in claim 1, wherein the transceiving means (TAF, 93) is arranged to transceive data units (60) in information fields (52) of frames (50) transmitted over the air interface.

3. A mobile terminal as claimed in claim 2, wherein the frames (50) are transmitted over the air interface in consecutive TDMA data frames, and the bearer modification comprises modification of the amount of time slots in consecutive TDMA frames assigned for the transmission between the mobile terminal (MS) and the mobile network element (IWF).

4. A mobile terminal as claimed in claim 3, wherein the bearer modification either of the following: bearer upgrading and bearer downgrading.

5. A mobile terminal as claimed in claim 1, wherein the mobile terminal is a GSM terminal supporting HSCSD service and the mobile network element being the Inter-Working Function (IWF) of the Mobile Switching Center (MSC).

6. A mobile terminal as claimed in claim 1, wherein said status indication (53) comprises an indication (Flbit) of flow control, when the flow control is active in the mobile network element (IWF), and said detecting means (96) being responsive to said indication (Flbit) of flow control.

7. A mobile terminal as claimed in claim 6, wherein said detecting means (96) comprises a counter (CT) arranged to be incremented as a response to a data unit (60) that comprises said indication (Flbit) of flow control and is preceded by a data unit (60) that also comprises said indication (Flbit) of flow control.

8. A mobile terminal as claimed in claim 6, wherein the control means (91) is arranged to initiate a negotiation for

bearer downgrading, as a response to the reading of the counter (CT) exceeding a predefined threshold (TH1).

9. A mobile terminal as claimed in claim 1, wherein the status indication (53) is an ending indication (Sbit) included in the data unit (60) whenever the data unit (60) is not full of data.

10. A mobile terminal as claimed in claim 1, wherein said means for detecting comprises at least one counter (SE) arranged to be incremented at least as a response to the data unit (60) comprising said ending indication (Sbit), and at least one timer (t).

11. A method for communicating with a mobile network element (IWF), comprising:

communicating data with a mobile network element (IWF) using a bearer that is modifiable by a negotiation between the mobile terminal (MS) and the mobile network element (IWF), said data being divided into data units (60), wherein each data unit comprises at least one user data element (61) and at least one status data element (62), said status data element (62) comprising a status indication (63) from the mobile network element (IWF) to the mobile terminal (MS);

wherein the method further comprises

detecting a need for bearer modification from received status indications (63) in at feast two consecutive data units; and

initiating a negotiation for bearer modification, as a response to the detected need for bearer modification.

12. A method of communication between a network element and a mobile terminal in a communication network comprising;

exchanging a plurality of data units between the network element and the mobile terminal, wherein at least one data unit includes a status bit indicating that flow control in data terminal equipment used to transmit the data unit is active or inactive;

analyzing the status bit; and

requesting a change in a data rate used to exchange the plurality of data units.

13. The method of communication of claim 12, wherein the plurality of data units are exchanged using a number of time slots, and the data rate is changed by changing the number of time slots.

14. The method of communication of claim 12, wherein the mobile terminal analyses the status bit and requests the change in data rate.

15. A communication network comprising;

a mobile terminal;

a network element for exchanging a plurality of data units with the mobile terminal;

circuitry for providing at least one data unit that includes a status bit indicating that flow control in data terminal equipment used to transmit the data unit is active or inactive; and

circuitry for analyzing the status bit and for requesting a change in a data rate used to exchange the plurality of data units.

16. The communication network of claim 15, wherein the mobile terminal and the network element further comprise circuitry for exchanging the plurality of data units using time slots, and wherein the data rate is changed by changing the number of time slots.

17. The communication network of claim 15, wherein the circuitry for providing at least one data unit that includes a status bit is part of the network element.

18. The communication network of claim 15, wherein the circuitry for analyzing the status bit and for requesting a change in a data rate is part of the mobile terminal.